SUNDAY, FEBRUARY 7
Arrival and Registration

MONDAY, FEBRUARY 8
Welcome and Keynote Session (Joint)
Paola Arlotta, Harvard University, USA
Programming, Reprogramming and Modeling of the Mammalian Cerebral Cortex
Matthias Lutolf, EPF Lausanne, Switzerland
Engineering Epithelial Organoid Development

Embryoids and Gastruloids for Early Development (Joint)
Jianping Fu, University of Michigan, Ann Arbor, USA
Building Synthetic Human Embryo-Like Structures
Magdalena D. Zernicka-Goetz, Caltech and University of Cambridge, UK
Development of Cell Lineages and Patterning in the Early Mammalian Embryo
Alfonso Martinez Arias, University of Cambridge, UK
Gastruloids: A PSC Based Model for Mammalian Gastrulation and Body Plan Engineering

Short Talks Chosen from Abstracts
Advanced Technologies for Engineering Multi-Cellular Living Systems: Computation (Q3)
Yoshihiro Morishita, RIKEN, Japan
Quantitative Imaging and Geometrical Analysis of Organ Morphogenetic Processes
Melissa L. Kemp, Georgia Institute of Technology, USA
Modeling Self-Organization in Multi-Cellular Engineered Living Systems
Elebeoba E. May, University of Houston, USA
Predictive Modeling to Enable Prescriptive Design and Programmability

High Content Screening with Organoids (Q4)
Prisca Liberati, Friedrich Miescher Institute for Biomedical Research, Switzerland
Regenerative Landscape of Intestinal Organoids
Nancy L. Allbritton, University of Washington, USA
Gut Physiology in 2D and 3D Engineered Systems
Samira Musah, Duke University, USA
Human Podocytes on a Chip for Disease Modeling

TUESDAY, FEBRUARY 9
Microphysiological Systems and Drug Discovery Platforms (Q3)
Roger D. Kamm, Massachusetts Institute of Technology, USA
Microphysiological Models for Neurological Disease
Sandra J. Engle, Biogen, USA
In vitro Models to Enable Drug Discovery
Danilo A. Tagle, NCATS, National Institutes of Health, USA
Tissue Chips for Drug Screening
Sylvia F. Boj, Hubrecht Organoid Technology, Netherlands
Patient-Derived Organoids for Drug Development and Screening

Increasing Complexity in Organoids by Leveraging Development (Q4)
Giorgia Quadrato, University of Southern California, USC Stem Cell, USA
Modeling Human Brain Development and Disease at Single Cell Resolution with Brain Organoids
Jason R. Spence, University of Michigan Health System, USA
Complex Cell-Cell Interactions in the Developing Human Lung and Gut
Barbara Treutlein, ETH Zürich, Switzerland
Single Cell Genomics to Guide Human Stem Cell and Tissue Engineering

Biohybrid Systems and Biological Robotics (Q3)
Christine L. Mummery, Leiden University Medical Center, Netherlands
Biophysical Techniques for Characterization and Functional Analysis of Cardiovascular Cells
Kevin Kit Parker, Harvard University, USA
Building a Heart
Rashid Bashir, University of Illinois, USA
3D Printed Cellular Machines for Engineering and Biology

Organoids for Drug Discovery and Precision Medicine (Q4)
Speaker to be Announced
Lorna Ewart, Veroli Consulting, UK
Next Generation in vitro Systems for Drug Discovery
**KEYSTONE SYMPOSIA**
on Molecular and Cellular Biology

**Engineering Multi-Cellular Living Systems - RESCHEDULING IN PROGRESS (Q3)**
Scientific Organizers: Roger D. Kamm, Nuria Montserrat Pulido and Jianping Fu
Supported by the Directors’ Fund

**Organoids as Tools for Fundamental Discovery and Translation - RESCHEDULING IN PROGRESS (Q4)**
Scientific Organizers: Jason R. Spence, Melissa Little and Barbara Treutlein

February 7-11, 2021 • Keystone Resort • Keystone, CO, USA
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Scholarship Deadline: October 27, 2020 / Abstract Deadline: November 10, 2020 / Discounted Registration Deadline: December 8, 2020

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**WEDNESDAY, FEBRUARY 10**

**Advanced Technologies for Engineering Multi-Cellular Living Systems: Imaging, Biomaterials, and 3D Printing (Q3)**

**Speaker to be Announced**

- Adam W. Feinberg, Carnegie Mellon University, USA
  3D Bioprinting of Collagen to Rebuild Components of the Human Heart
- Anjelica L. Gonzalez, Yale University, USA
  Development of Biomaterials for Use As Investigational Tools
- Claire G. Jeong, insitro, USA
  Talk Title to be Announced

**Organoids for Disease Modeling (Q4)**

- Meritxell Huch, University of Cambridge / Max Planck Institute of Molecular Cell Biology and Genetics, UK
  Liver Organoids for Human Biology and Disease
- Reiner Alois Wimmer, Institute of Molecular Biotechnology Austria, Austria
  Human Blood Vessel Organoids as a Models of Vasculopathies
- Mina Gouti, Max-Delbrück Center for Molecular Medicine, Germany
  Neuromuscular Organoids to Model Human Development and Disease
- Anna Greka, Harvard Medical School, USA
  Modeling Genetic Diseases in Human Kidney Organoids

**Bioengineering Ethics (Joint)**

- Insoo Hyun, Case Western Reserve University, USA
  Bioengineering Ethics in Organoids
- Megan Munsie, University of Melbourne, Australia
  Ethical, Legal and Social Implications of Stem Cell Research
- Jeremy Sugarman, Johns Hopkins University, USA
  Ethics in Organoid Transnational Research

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**THURSDAY, FEBRUARY 11**

**Bioengineering of Organoids (Joint)**

- Nuria Montserrat Pulido, Institute for Bioengineering of Catalonia, Spain
  Engineering Solutions for Pluripotent Stem Cell Derived Kidney Organoids
- Jennifer A. Lewis, Harvard University, SEAS, USA
  Vascularization of Organoids

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*Session Chair † Invited but not yet accepted  Program current as of August 31, 2020. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.*